

FUGRO O-CELL[®] BI-DIRECTIONAL LOAD TESTING

The genuine Osterberg Cell (O-Cell), only offered by Fugro, will significantly reduce construction costs with foundation design calibration. Internationally recognized, the O-Cell is the pre-eminent bi-directional method for testing drilled shafts and piles. Only O-Cell has proprietary friction-free, tilt-tolerant design. The only solution for reliable design calibration.

Fugro, through research and experience, has redefined the science of load testing with the O-Cell. No job is too big or too small to benefit from the Osterberg Cell. Tried and true around the world, over 5000 successful O-Cell tests have been performed in over 60 countries. Numerous load testing records have been established with the O-Cell including the current world record of 72,600 kips set in Louisville, Kentucky in 2013. Ultra-high capacity piles and mono-piles are used today as a direct result of Fugro's ability to calibrate their design capacity.

THE GENUINE O-CELL METHOD

Only genuine O-Cells are ISO/IEC 17025 accredited and have been awarded patents in 18 countries globally with an additional 12 pending. It is the only bi-directional testing solution to offer patented instrumented rams where additional accuracy counts. Only genuine O-Cells come with automated load control for precise load steps and maintained loading increments.



Cage installation



O-CELL TECHNOLOGY

Dr. Jorj O. Osterberg, Professor Emeritus of Civil Engineering at Northwestern University, invented and developed the Osterberg Cell, or O-Cell, to meet the foundation industry's need for an innovative, effective method for testing high-capacity drilled shafts and piles. Engineers no longer need to rely on non-conservative scaled tests because of full scale conventional test expense and safety concerns. The genuine O-Cell economically and accurately measures the true geotechnical capacity of production size foundations allowing for optimal design calibration.

The O-Cell is an individually calibrated hydraulic sacrificial loading device installed within the foundation unit. Working in two directions, upward against side-shear resistance and downward against end-bearing resistance, the O-Cell automatically separates the resistance and displacement data for each component of





Multiple O-Cells on a single plane

the pile. By virtue of its installation within the foundation element, the O-Cell load test is not restricted by overhead structural beam limits and reaction piles. Instead, the O-Cell derives reaction resistance from the soil and/ or rock system with each respective pile component of resistance providing reaction for loading the other.

TEST RESULTS

With the typical O-Cell location very close to the foundation tip, determination of side shear and end bearing resistance is straightforward. Testing is performed until either ultimate upward or downward capacity is achieved or the maximum O-Cell stroke or load capacity is reached. Use of strain gages within the foundation allows determination of the load distribution throughout the foundation length. O-Cell testing experts analyze the test results and prepare a timely test data and analysis report to the design engineer for immediate use in the final design calibration.



Load movement plots



Unit shear and end bearing plots

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